

## Fire and Explosion Scene Examination

### Section A: True/False

**Directions:** Write True or False on the blanks provided; if false, write the correct statement on the lines provided.

1. \_\_\_\_\_ Evidence found at the exterior of the fire scene can provide clues about types and extent of fire-suppression activities. (289)  
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2. \_\_\_\_\_ A fire investigator should determine, identify, and interpret building construction types and systems. (289)  
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\_\_\_\_\_
3. \_\_\_\_\_ Glass broken before the fire will have soot deposits on either side. (290)  
\_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_ During the initial walkthrough, the investigator should note hypotheses and should make a determination of the area of origin. (292)  
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5. \_\_\_\_\_ An objective of debris removal is to reveal the area of origin. (302)  
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\_\_\_\_\_
6. \_\_\_\_\_ The investigator must determine where to start examining and excavating based on analyses of fire movement and intensity patterns. (303)  
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7. \_\_\_\_\_ To determine location for excavation, the investigator should consider amount of debris and its composition layering. (303)  
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8. \_\_\_\_\_ Heavy machinery used to excavate is usually fueled with ignitable liquids, which may contaminate the scene. (307)
- \_\_\_\_\_
- \_\_\_\_\_
9. \_\_\_\_\_ In addition to burn patterns, the presence of soot in the trachea past the vocal cords is conclusive proof of active respiration in fire conditions. (300)
- \_\_\_\_\_
- \_\_\_\_\_
10. \_\_\_\_\_ A fire investigator consults a forensic anthropologist in criminal cases where the victim's remains are more or less reduced to a skeleton. (288)
- \_\_\_\_\_
- \_\_\_\_\_
11. \_\_\_\_\_ Carboxyhemoglobin (COHb) level in the victim's blood is a definitive measure of the conditions the victim experienced. (299)
- \_\_\_\_\_
- \_\_\_\_\_

## Section B: Fill in the Blank

**Directions: Write the correct answer on the blanks provided.**

1. When investigators find potential evidence at the exterior of a structure, they should secure the material and protect it from \_\_\_\_\_ or destruction. (287)
2. Glass found with soot on one side is an indication that the glass was broken during or \_\_\_\_\_ the fire. (290)
3. To determine whether evidence is present in melted material, solidified debris may be examined with \_\_\_\_\_ and CT scans. (306)
4. Before starting debris movement, investigators must also identify the path of travel that will be used to move materials away from the \_\_\_\_\_ site. (306)
5. Intoxication and physical disabilities are two of the \_\_\_\_\_ that can complicate victim rescue, recovery, and survival at fire incidents. (301)
6. Burn severity is measured in two ways: \_\_\_\_\_ and \_\_\_\_\_. (300)

## Section C: Matching

**Directions:** Write the correct answers on the blanks provided.

### Burn Severity

Match the degree of burns with its proper description.

Choices:

- A. 1st degree
- B. 2nd degree
- C. 3rd degree
- D. 4th degree
- E. 5th degree
- F. 6th degree

Questions:

- \_\_\_\_\_ 1. Damage extending into muscle. (300)
- \_\_\_\_\_ 2. Damage extending into the fat under the skin layers. (300)
- \_\_\_\_\_ 3. Outer layer of skin (epidermis); usually heals within a week. (300)
- \_\_\_\_\_ 4. Damage extending into bone. (300)
- \_\_\_\_\_ 5. Epidermis and second layer (dermis) damage and blistering; may need a skin graft and may leave a scar. (300)
- \_\_\_\_\_ 6. Destruction of both layers of skin; will require skin grafts. (300)

## Section D: Multiple Choice

**Directions:** Write the correct answers on the blanks provided.

- \_\_\_\_\_ 1. An investigator must conduct a scene safety assessment to confirm that: (286)
  - A. the fire will not start again.
  - B. unauthorized entry is not permitted.
  - C. free access to the fire scene is permitted.
  - D. some of the evidence is protected from further damage.
- \_\_\_\_\_ 2. Why should investigators establish an initial scene security perimeter farther than they think necessary? (287)
  - A. A small investigation site allows evidence to be overlooked.
  - B. The investigation area should always be as large as possible.
  - C. The security perimeter cannot be changed once it is set.
  - D. It is easier to decrease the size of a secured area than to increase it.

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- \_\_\_\_\_ 3. In order to create a secure area at an explosion scene in which evidence can be collected, the investigator should measure from the epicenter to the farthest point of evidence and: (287)
- A. use that measurement plus a quarter again for the outside of the perimeter.
  - B. use that measurement plus 1 1/2 times again for the outside of the perimeter.
  - C. use that measurement plus half again for the outside of the perimeter.
  - D. use that measurement plus 3 times again for the outside of the perimeter.
- \_\_\_\_\_ 4. Scene conditions an investigator notes during a scene examination can include: (286)
- A. evidence of water department operations.
  - B. evidence of police department operations.
  - C. prefire conditions of the structure, contents, and area.
  - D. prefire behaviors and characteristics of incident victims.
- \_\_\_\_\_ 5. The exterior of a fire scene includes all of the areas: (289)
- A. outside the perimeter of the scene.
  - B. within 1.5 mile radius around the structure.
  - C. from the perimeter of the scene to the inside of the structure.
  - D. from the perimeter of the scene to the outside of the structure.
- \_\_\_\_\_ 6. When conducting an exterior examination of a scene, an investigator can first examine the ground around the structure and should: (292)
- A. develop hypotheses based on internal fire patterns.
  - B. offer other hypotheses that could explain the anatomic data.
  - C. take field notes and photographs of the entire structure and areas of interest.
  - D. note possible locations of interior fuel packages and fire department operations.
- \_\_\_\_\_ 7. What should fire investigators do when they find contents from the interior of the structure outside the structure? (290)
- A. Nothing is required to be done
  - B. Return all items inside the structure
  - C. Must determine whether these items belong to the structure and place items in the secure zone
  - D. Must determine whether these items were removed before, during, or after the fire or explosion
- \_\_\_\_\_ 8. If no probable ignition sequence can be determined during the scene excavation process, an investigator may need to: (303)
- A. start the excavation process over again.
  - B. do nothing at all according to AHJ policies.
  - C. radically change the excavation technique used.
  - D. remove and analyze debris in other areas of the scene.

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- \_\_\_\_\_ 9. Which item would generally be found in the top layer of the debris at a structural fire scene? (303)
- A. Ceiling joist
  - B. Bodies of victims
  - C. Plastic furnishings
  - D. Wall hanging objects
- \_\_\_\_\_ 10. During the analysis of debris layers, what kind of system should a fire investigator use to promote a systematic examination and documentation of the process? (304)
- A. Grid
  - B. Angularity
  - C. Geometrical
  - D. Mathematical
- \_\_\_\_\_ 11. Which incident areas should also be examined and documented as part of origin determination process? (304)
- A. Protected
  - B. Unburned
  - C. Unprotected
  - D. Outside the perimeter
- \_\_\_\_\_ 12. Teams tasked to remove debris should follow directions from the: (287)
- A. lead investigator.
  - B. fire department chief.
  - C. police department chief.
  - D. insurance adjuster officer.
- \_\_\_\_\_ 13. What are the three components of the Golden triangle of death? (297)
- A. The history, the scene and the autopsy
  - B. The history, the crime mode and the autopsy
  - C. The history, the cause of death and the autopsy
  - D. The evidence, the manner of death and the autopsy
- \_\_\_\_\_ 14. What size of screen is normally sufficient to sift debris found at a fatal fire scene? (295)
- A. 1/4 inch followed by a 1/6 inch
  - B. 1/3 inch followed by a 1/5 inch
  - C. 1/2 inch followed by a 1/4 inch
  - D. 1/2 inch followed by a 1/3 inch

**Section E: Short Answer**

**Directions:** Write the correct answers on the lines provided.

1. During the exterior scene examination, which evidence of fire department operations should be examined and documented by a fire investigator? (290)

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2. During the scene examination, what should the fire investigator determine about the utility service? (290)

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3. Determination of the level of detail required for an interior examination is based on: (291)

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4. What should a detailed and systematic examination of the interior of a structure include? (292)

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5. List three exterior building systems that should be examined to determine whether they contributed to the ignition or spread of a fire. (291)

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6. An investigator who only focuses on assessing a possible ignition source may report inaccuracies in: (305)

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7. Identify two out of the four considerations a fire investigator must take when formulating a strategy for removing debris? (306)

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8. List three of the six questions that will help a fire investigator determine the important facts at a fatality fire scene. (297)

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9. What should the investigator do with all collected debris that was surrounding the deceased body? (295)

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10. What kind of tests should the investigator ask for any clothing remains from a deceased body? (296)

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